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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/541,160

04/20/2006

Timo Muutonen

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EXAMINER

BOMAR, THOMAS S

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/541,160	<b>Applicant(s)</b> MUUTTONEN ET AL.	
	<b>Examiner</b> Shane Bomar	<b>Art Unit</b> 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 is/are allowed.
- 6) ☒ Claim(s) 1,6-8,12 and 14 is/are rejected.
- 7) ☒ Claim(s) 2-5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 9-11 are objected to because of the following informalities: these claims should be labeled as (Withdrawn) or should be cancelled since they are directed to a non-elected species. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 14 recites the limitations "the first contact surface" and "the second contact surface" in line 15. There is insufficient antecedent basis for these limitations in the claim.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 6-8, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,186,246 to Muuttonen et al.

Regarding claims 1 and 12, Muuttonen et al disclose a rock drilling machine comprising at least:

a frame 6; a percussion element 1 for generating stress pulses; a shank 2 arranged at the front of the percussion element in the percussion direction, the shank comprising a percussion surface for receiving said stress pulses; and an axial bearing comprising at least:

a first piston 14b and a second piston 14a; between the pistons, an axial first contact surface and an axial second contact surface, the contact surfaces being located in the same pressure space along the plane where the two pistons slide relative to one another (i.e., where the O-ring lies between the two pistons); at least one pressure duct 17a for leading pressure fluid from a pressure source to the axial bearing; pressure surfaces in the pistons, on which surfaces the pressure fluid is arranged to act for axial movement of the pistons; and in which the pistons are arranged in the axial bearing to push the shank along a different travel length towards the percussion direction since piston 14a is restricted to a smaller area by shoulder 15a than is piston 14b by shoulder 15b; the force of said pistons, by the action of the pressure fluid towards the percussion direction, being dimensioned such that the percussion surface is adjustable during drilling at the desired axial point for receiving the stress pulses, wherein the same pressure fluid fed to the axial bearing is arranged to act on said piston contact surfaces and pressure surfaces since the same duct 17a leads to both sets of surfaces (Fig. 5; col. 6, lines

28-40). It is noted that the contact surfaces between the two pistons share the same axis, thereby making them axial contact surfaces.

Regarding claim 6, the pressure duct 17a is inherently in contact with a percussion pressure duct of the rock drilling machine to receive pressure fluid, and the pressure duct comprises at least one element for affecting the flow of pressure fluid, such as the enlarged area behind piston 14a that leads to a smaller diameter hole and bend in the duct 17a, which will affect the flow of the fluid (Fig. 5).

Regarding claim 7, the first piston and the second piston are sleeve-like pieces arranged around the percussion element 1 (Fig. 5).

Regarding claim 8, the first piston 14b is an elongated sleeve supported by the frame in the area of its first and second ends, in the section between the first end and the second end, the first piston comprises a shoulder 14b' provided on the outer periphery of the sleeve, the shoulder having an axial first contact surface pointing in a direction opposite to the percussion direction, the second piston is around the first piston, and the second piston comprises a second contact surface 14a' pointing in the percussion direction and arranged in the same pressure space as said axial first contact surface of the shoulder 14b' (Fig. 5).

#### ***Allowable Subject Matter***

7. Claim 13 is allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claim 13, it is noted that, although pressure fluid that is fed to the bearing does flow from the first pressure space behind piston 14a to the second pressure space behind piston

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14b, only the axial contact surface of the piston 14a can be seen as in the second pressure space behind piston 14b (although the surface is actually adjacent to the space behind piston 14b). The axial contact surface of the second piston 14b cannot be seen to be in the second pressure space, neither in view of the reference alone, nor in combination with the prior art of record.

9. Claims 2-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. As with claim 13, at least one of the axial contact surfaces cannot be seen by the Examiner as being located “in a second pressure space in front of the first pressure space.”

### ***Response to Arguments***

11. Applicant's arguments filed 11/16/2007 have been fully considered but they are not persuasive. To begin, the arguments are more limited than the claims themselves. The Applicant argues that an advantage of the present invention is that the axial contact surfaces are continuously lubricated by the pressure fluid, and that the pressure fluid may serve as a damper for the bearing. These limitations are not present in any of the pending claims. The Applicant then argues that pressure fluid from duct 17a in Muuttonen cannot flow towards the percussion direction and act on contact surfaces between the two pistons. Again, this is more limiting than the claims because the direction of flow for the pressure fluid is never claimed. However, Figure 5 of Muuttonen shows that fluid flows through duct 17a, through the pressure space behind

piston 14a (to act on the pressure surface of piston 14a), then encounters a 90 degree bend so that the flow is in the direction of percussion, then enters the pressure space behind piston 14b (to act on pressure surface of piston 14b), and is directed at least towards the interface of the two axial contact surfaces of the two pistons while in the pressure space behind piston 14b. Therefore, the same pressure fluid from duct 17a is *arranged to act* on the piston contact surfaces and pressure surfaces (emphasis added); therefore Muutonen is still seen to anticipate the claims noted above.

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is (571)272-7026. The examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer H. Gay can be reached on 571-272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shane Bomar/  
Examiner, Art Unit 3676